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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/648,122

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Laura Kramer

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03/13/2006

EXAMINER

KASENGE, CHARLES R

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INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

ART UNIT

PAPER NUMBER

2125

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/648,122	KRAMER ET AL.	
	Examiner	Art Unit	
	Charles R. Kasenge	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-36 and 50-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2, 30-36, 50-53, 58 and 62-64 is/are allowed.
- 6) ☒ Claim(s) 1, 3-26, 54, 55, 57, 59-61 and 65 is/are rejected.
- 7) ☒ Claim(s) 27-29 and 56 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 6/17/05 have been fully considered but they are not persuasive. Regarding claim 1, the Office reasserts that Liu discloses selectively dispensing a reactive resin directly onto said non-reactive powder (col. 24 and 25, lines 64-67 and 1-5). Liu states, "...depositing an image of binder powder to each of these porous substrate layers...". The Office interprets this as dispensing directly. Regarding claim 3, Liu teaches applying ultrasonic energy to said mixture of reactive resin and non-reactive powder (col. 7, lines 24-41).

Regarding claims 24 and 59, the Applicant argues that the word "selectively" differentiates their dispensing system from Liu's. However, given the broadest reasonable interpretation of the limitation, Liu does disclose selectively dispensing since the claim does not specify what "selectively" means. The Office interprets the binder mixture be "both components" since it contains build material (col. 7 and 8, lines 61-66 and 19-29) and a curing agent (col. 7, line 63). Liu then teaches the binder mixture being dispensed onto a non-reactive powder (col. 7 and 8, lines 67 and 1-3).

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-26, 54, 55, 57, 59-61 and 65 are rejected under 35 U.S.C. 102(b) as being anticipated by Liu et al. U.S. Patent 6,376,148. Referring to claims 1, 55, 59 and 65, Liu discloses a method for creating a three-dimensional solid freeform fabrication object with non-reactive powder (col. 6, lines 20-35) comprising: spreading a non-reactive powder on a substrate (col. 5, lines 35-50); selectively dispensing a reactive resin onto said non-reactive powder, forming a mixture of reactive resin and non-reactive powder, wherein said mixture defines said three-dimensional object (col. 7 and 8, lines 61-67 and 1-8); and curing said reactive resin thereby encapsulating said non-reactive powder (col. 6, lines 20-35).

Referring to claims 3-8 and 54, Liu discloses the method of claim 1, further comprising applying ultrasonic energy to said mixture of reactive resin and non-reactive powder (col. 17, lines 39-56). Liu discloses the method of claim 1, further comprising adding color to said reactive resin (col. 9, lines 5-13). Liu discloses the method of claim 1, wherein said reactive resin comprises a one-part reactive resin (col. 6, lines 20-35). Liu discloses the method of claim 5, wherein said one-part reactive resin comprises an ultraviolet (UV) curable resin (col. 6, lines 20-35). Liu discloses the method of claim 6, wherein said curing comprises applying UV radiation to said reactive resin (col. 6, lines 20-35). Liu discloses the method of claim 7, wherein said dispensing comprises selectively depositing a quantity of said one part reactive resin onto said non-reactive powder (col. 16, lines 16-22).

Referring to claims 9-15, 57, 60 and 61, Liu discloses the method of claim 1, wherein said reactive resin comprises a two-part reactive resin including a reactive build material and a curing agent (col. 7 and 8, lines 61-67 and 1-8). Liu discloses the method of claim 9, wherein said dispensing comprises: dispensing a layer of said reactive build material (col. 7 and 8, lines

61-67 and 1-8); and dispensing a layer of said curing agent (col. 7 and 8, lines 61-67 and 1-8).

Liu discloses the method of claim 9, wherein said dispensing comprises simultaneously dispensing said reactive build material and said curing agent (col. 7 and 8, lines 61-67 and 1-8).

Liu discloses the method of claim 9, wherein: said reactive build material comprises an epoxy (col. 11, lines 35-46); and said curing agent comprises a material from one of an amino group, a hydroxyl group, or a carboxyl group (col. 18, lines 33-53). Liu discloses the method of claim 9, wherein: said reactive build material comprises a polyisocyanate (col. 18, lines 33-53); and said curing agent comprises a polyol (col. 18, lines 33-53). Liu discloses the method of claim 9, wherein: said reactive build material comprises a functionalized silicone (col. 19, lines 1-14); and said curing agent is configured to react with a functional group on said silicone (col. 19, lines 1-14). Liu discloses the method of claim 9, wherein: said reactive build material comprises prepolymers with unsaturated functionality (col. 8, lines 26-31); and said curing agent comprises a free-radical cure curing agent (col. 17 and 18, lines 57-67 and 1-3).

Referring to claims 16-23, Liu discloses the method of claim 1, wherein said reactive resin comprises a two-part UV curable resin including a UV initiator and a build material (col. 17, lines 38-56). Liu discloses the method of claim 16, wherein said selectively dispensing comprises: dispensing a layer of build material on said non-reactive powder (col. 17, lines 38-56); and dispensing a layer of said UV initiator (col. 17, lines 38-56). Liu discloses the method of claim 16, wherein said selectively dispensing comprises simultaneously dispensing said build material and said UV initiator (col. 17, lines 38-56). Liu discloses the method of claim 16, wherein said UV initiator is dissolved in a solvent (col. 17 and 18, lines 57-67 and 1-7). Liu discloses the method of claim 19, wherein said solvent comprises a monofunctional monomer

(col. 17 and 18, lines 57-67 and 1-7). Liu discloses the method of claim 16, wherein said build material comprises one of an acrylic compound, a compound having an epoxy substituent, a vinyl ether substituent, vinylcaprolactam, vinylpyrrolidone, or urethanes (col. 17 and 18, lines 57-67 and 1-7). Liu discloses the method of claim 16, wherein said UV initiator comprises one of a free radical initiator or a cationic initiator (col. 17 and 18, lines 57-67 and 1-7). Liu discloses the method of claim 1, wherein said non-reactive powder comprises one of silica particles, glass spheres, metal powders, polymer powders, ceramic powders, or magnetic powders (col. 18, lines 33-42).

Referring to claims 24, Liu discloses a solid freeform fabrication system for producing a three-dimensional object using non-reactive powder comprising: a powder spreading system configured to spread a specified quantity of non-reactive powder (col. 16, lines 16-22); a dispensing system adapted to selectively dispense a reactive resin onto said non-reactive powder (col. 7 and 8, lines 61-67 and 1-8); a curing system configured to cure said reactive resin (col. 6, lines 20-35); and a computing device coupled to and configured to control said dispensing system and said curing system (col. 1, lines 6-13). Referring to claims 25 and 26, Liu discloses the solid freeform fabrication system of claim 24, wherein said powder spreading system comprises a mechanical roller (col. 14, lines 1-5). Liu discloses the solid freeform fabrication system of claim 25, wherein said mechanical roller is configured to planarize and pack a quantity of said non-reactive powder (col. 14, lines 1-5).

***Allowable Subject Matter***

4. Claims 2, 30-36, 50-53, 58 and 62-64 are allowed.

5. Claims 27-29 and 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

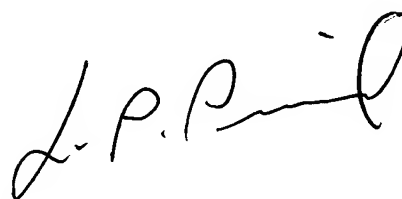
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles R Kasenge whose telephone number is 571 272-3743. The examiner can normally be reached on Monday through Friday, 8:30 - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2125

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CK  
March 5, 2006

A handwritten signature in black ink, appearing to read "L. P. Picard", written in a cursive style.

**LEO PICARD  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100**